Juno









The History of our Solar System

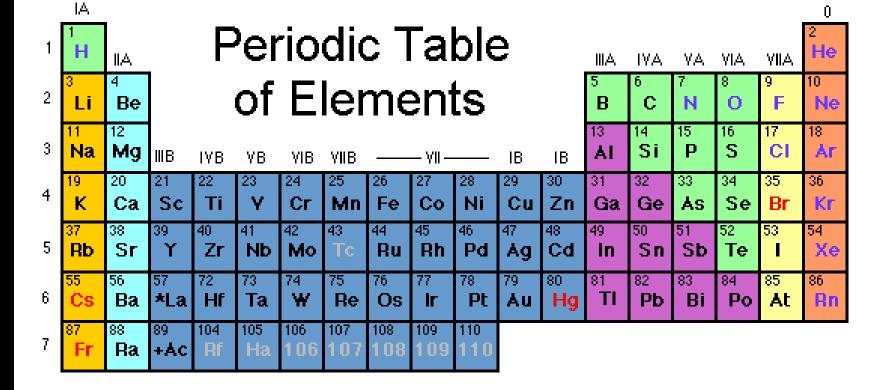
Jupiter is like the Sun but enriched in heavy elements.

How this happened is a mystery.

The formation of Jupiter is the first step in understanding how our solar system was formed.



These <u>heavy elements</u> are the seeds for Earth and life.





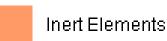
H - gas
Li - solid
Br - liquid
To - synthetic
Non-Metals
Transition Metals
Rare Earth Metals
Halogens

Alkali Metals

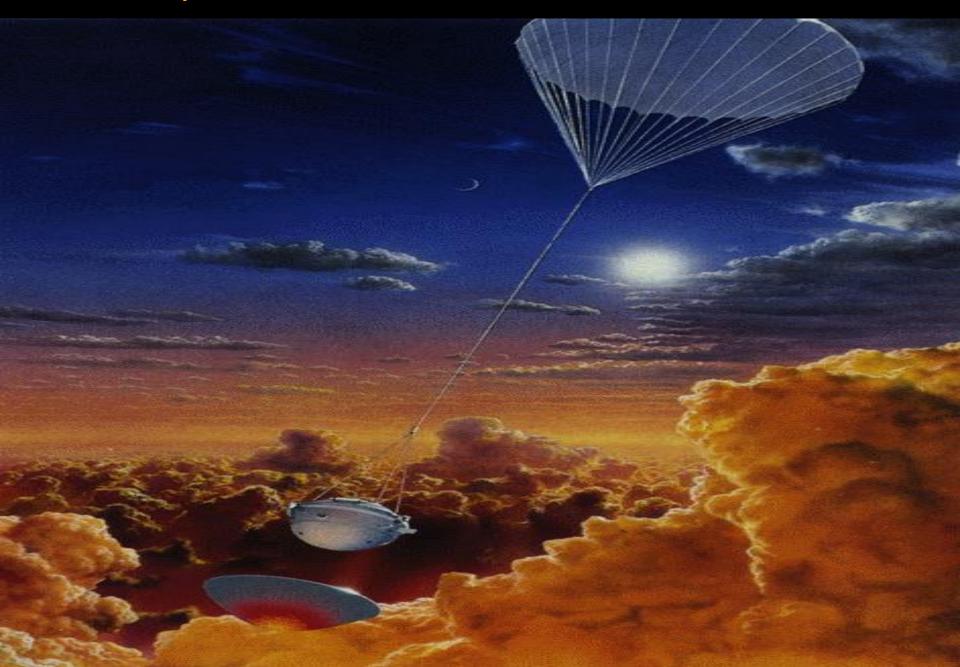




Other Metals



Galileo probe descent

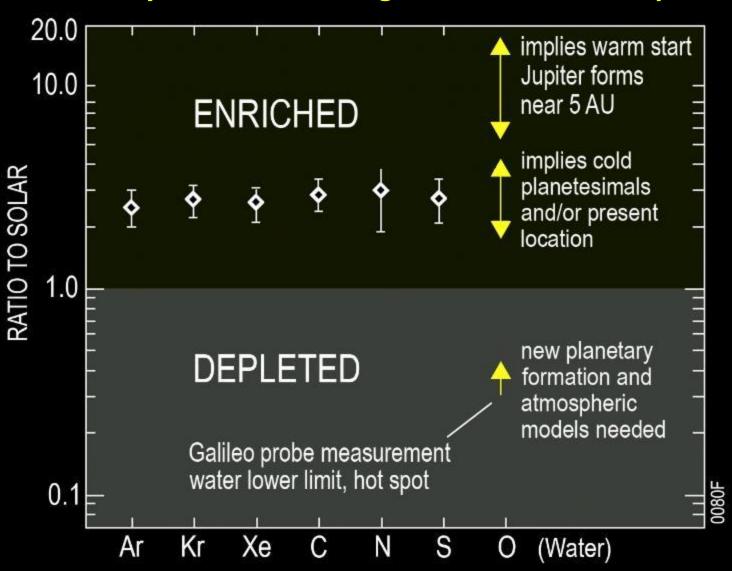


Galileo probe close up



Water \rightarrow Oxygen

Water is key to understanding the formation of Jupiter.





Juno's measurements related to origin

Gravity Science

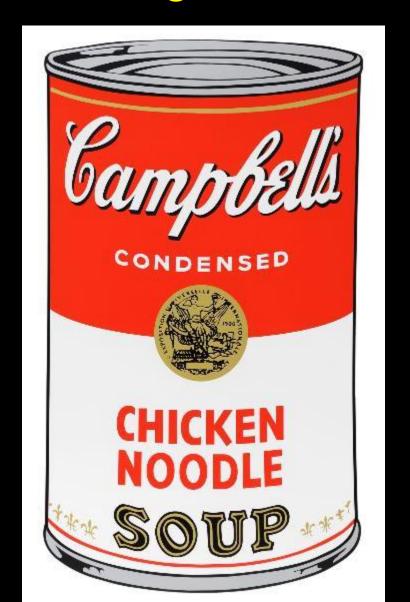
Does Jupiter have a core of heavy elements?
What initiated the formation of Jupiter?
When? What were the conditions in the proto-planetary nebula?

Water Abundance

Enrichment compared to other heavy elements?

How did the planets get their heavy elements? How did Earth's get its oceans and volatiles? History of volatiles across early solar system?

Consider the solar system as a soup.... we need to figure out the recipe

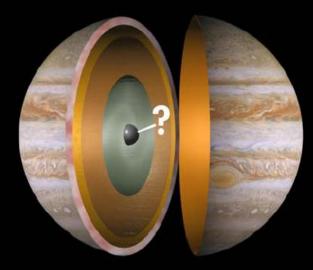


Juno Science Objectives

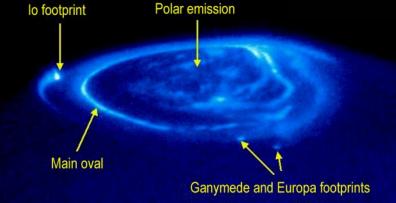
Origin

Interior



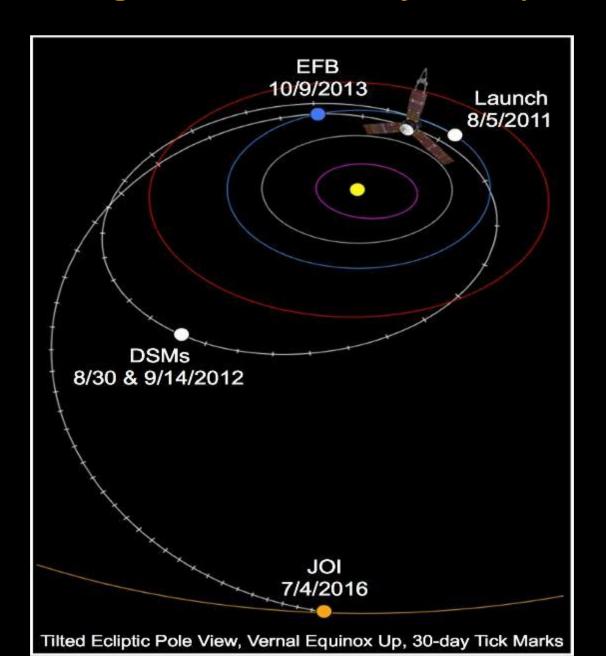


Atmosphere

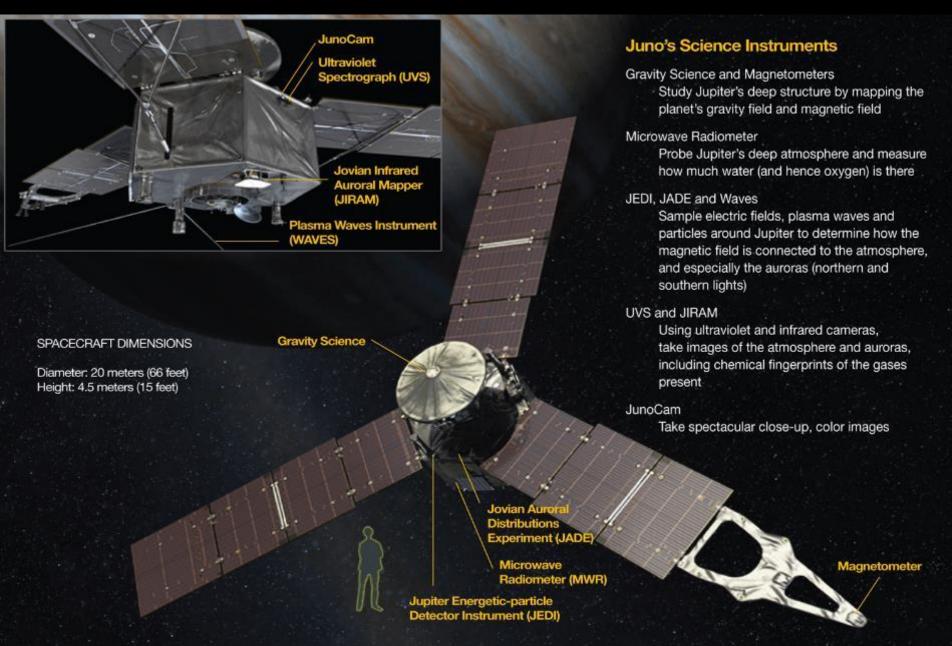


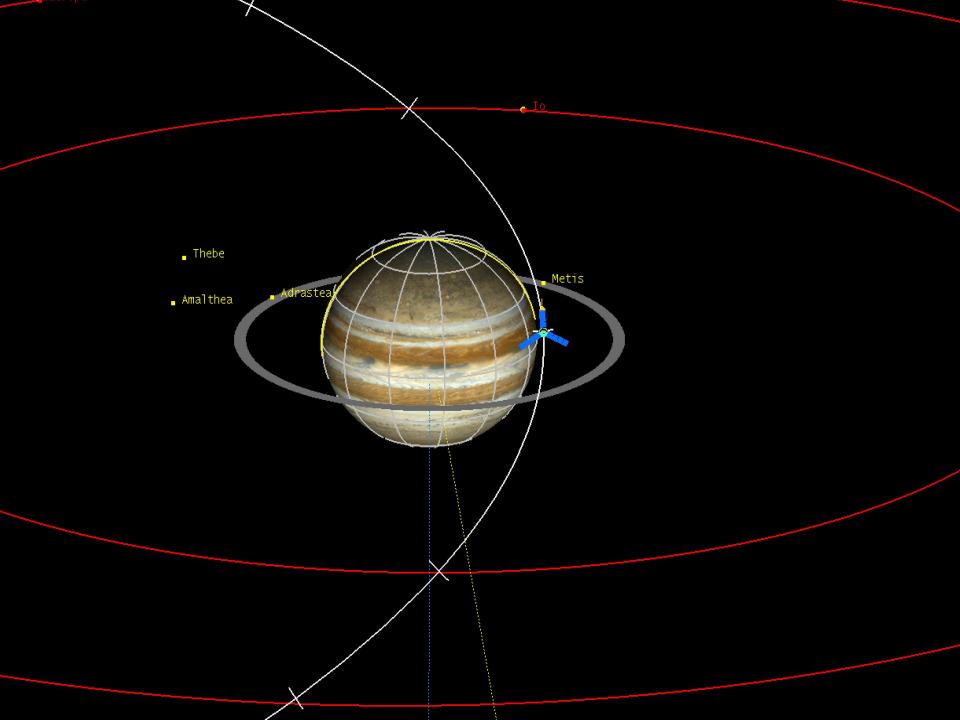
Magnetosphere

Juno's Flight Plan, or Trajectory

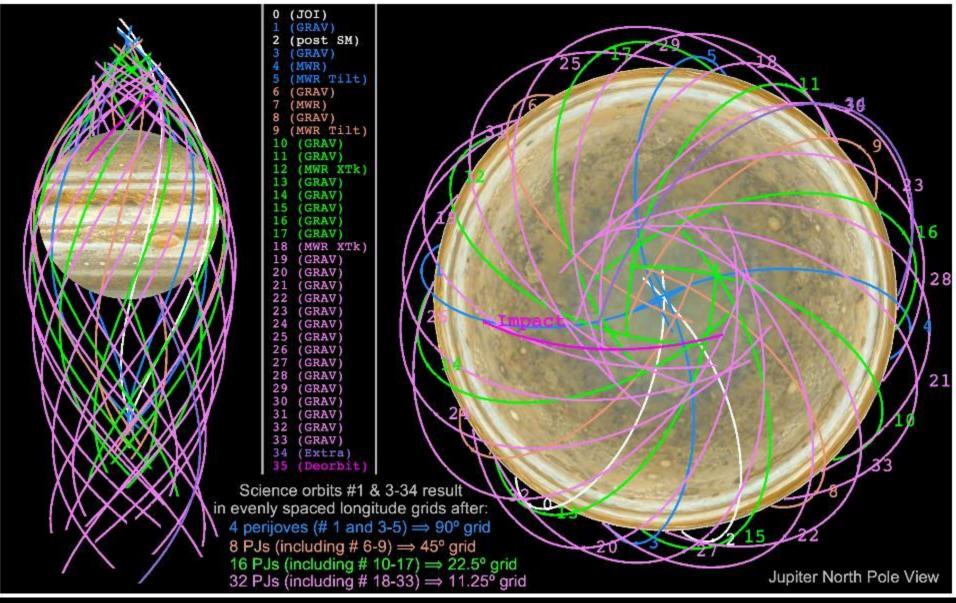


Spacecraft & Payload

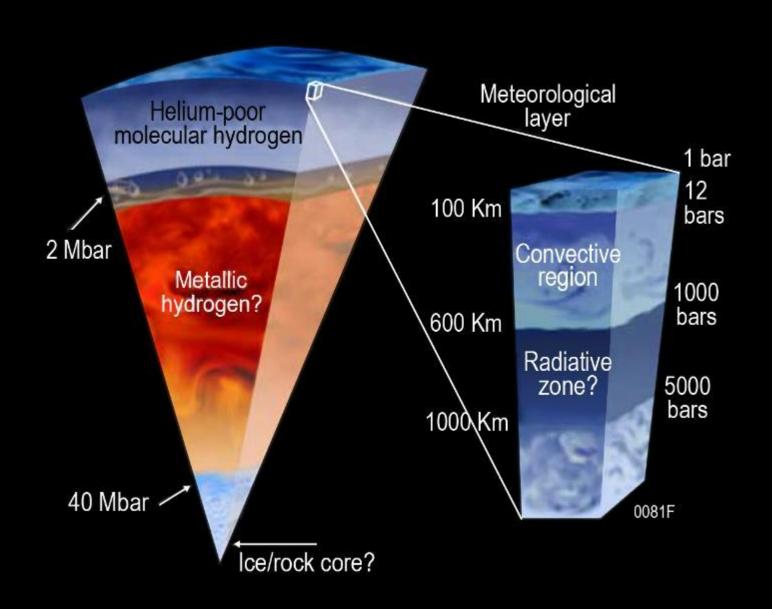




Longitude Map after 32 (+1) Orbits



Probing Deep and Globally





Baking the Jupiter Cake

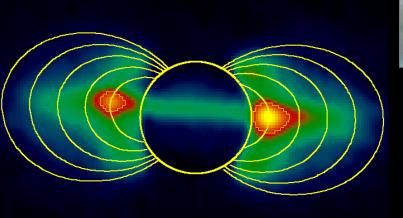


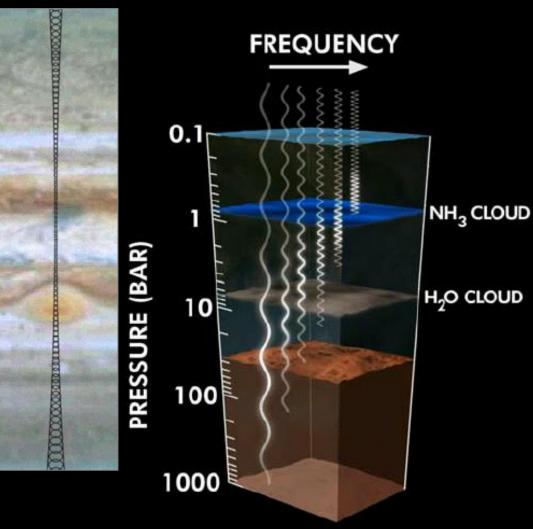
Sensing the deep atmosphere

MWR - A new kind of instrument

Sees through the clouds

Microwave Light





First peak underneath Jupiter's visible cloud deck (MWR instrument)

- Longer wavelength channels "see" deeper.
- The longest wavelength contribution function peaks at 350-400 km (200 bar)
- Evidence of evolved zone-belt structure appear to be present at depth.





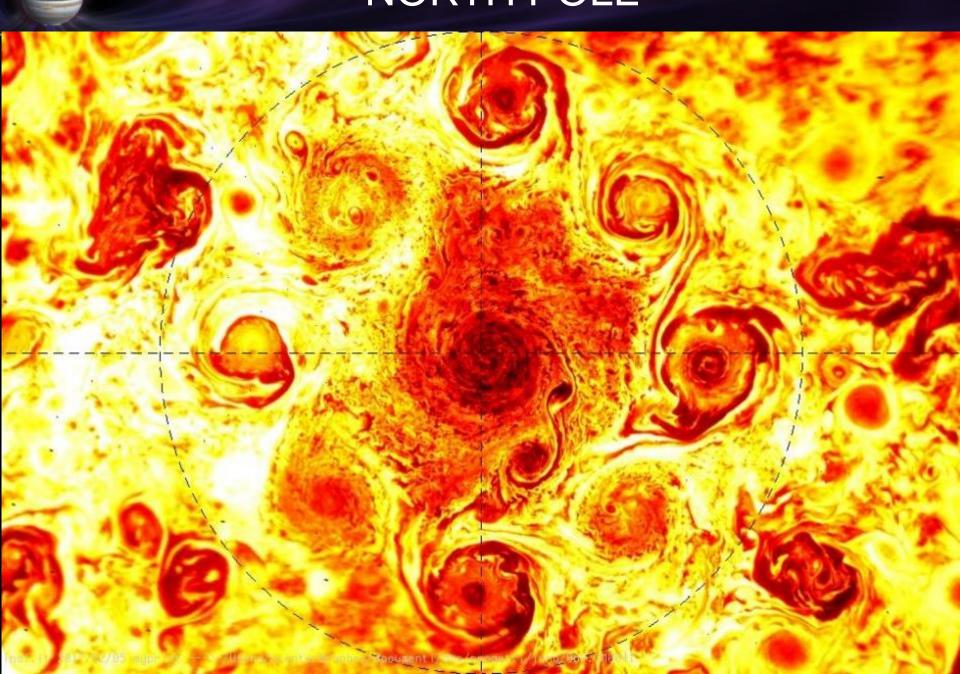


SOUTH POLE



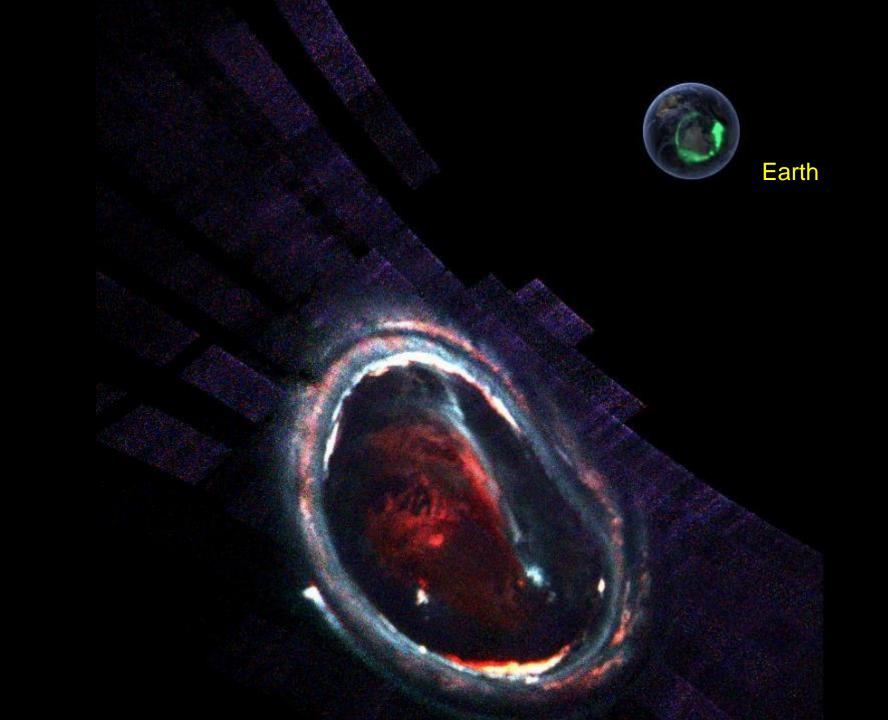


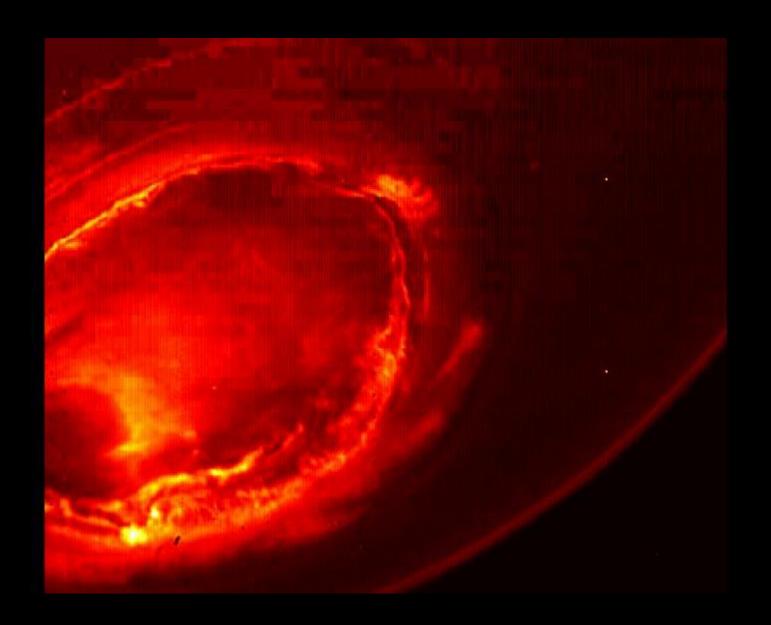
NORTH POLE

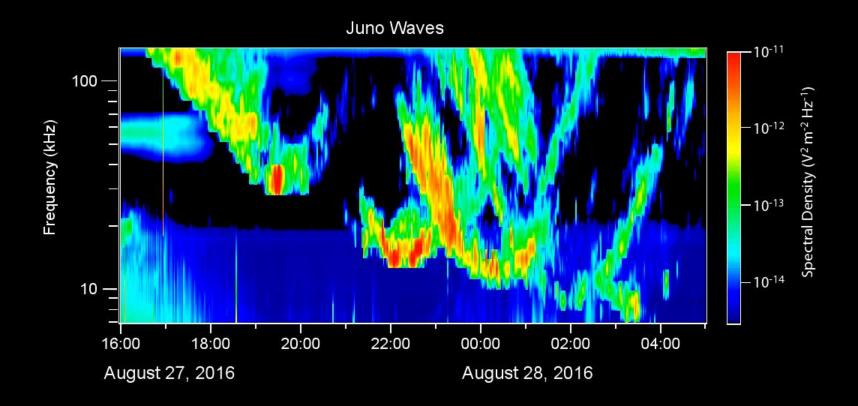


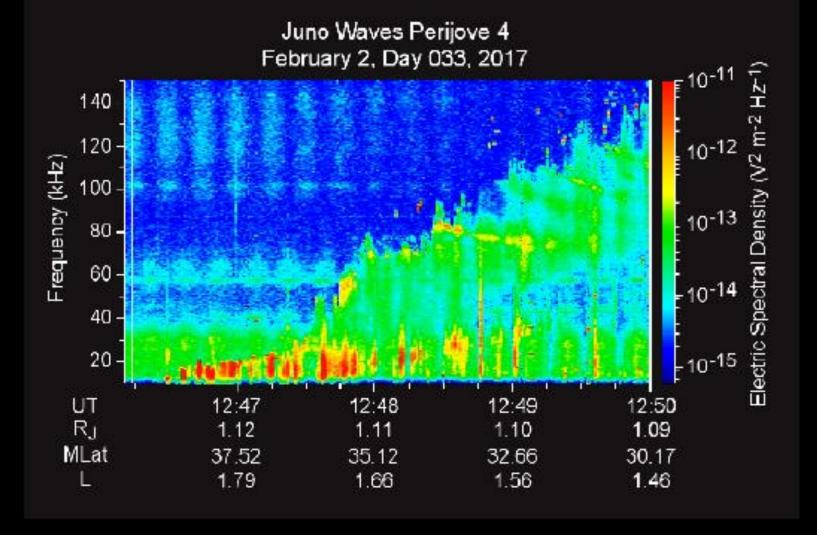
Vincent van Gogh - The Starry Night, 1889













"Science In A Fishbowl"

MENU SIGN UP OR LOGIN JUNOCAM Upload your images of Jupiter, comment on the images, and vote on what pictures JunoCam will take when it reaches Jupiter. VOTING PLANNING DISCUSSION PROCESSING Upload your telescopic images and Create and comment on points of Vote on points of interest for Browse other users' processed data of Jupiter to help the team interest in Jupiter's atmosphere JunoCam to capture during its images from JunoCam or plan the mission orbit of Jupiter download, process, and submit your own images. **GO TO PLANNING** COMING IN FALL COMING IN 2016 COMING IN 2016 **PLANNING** We're calling all amateur astronomers to upload their telescopic images and data of Jupiter. These uploads are critical for the upcoming Discussion section (coming this fall) and will help NASA successfully plan the future of the mission.

http://missionjuno.swri.edu click on "Junocam"

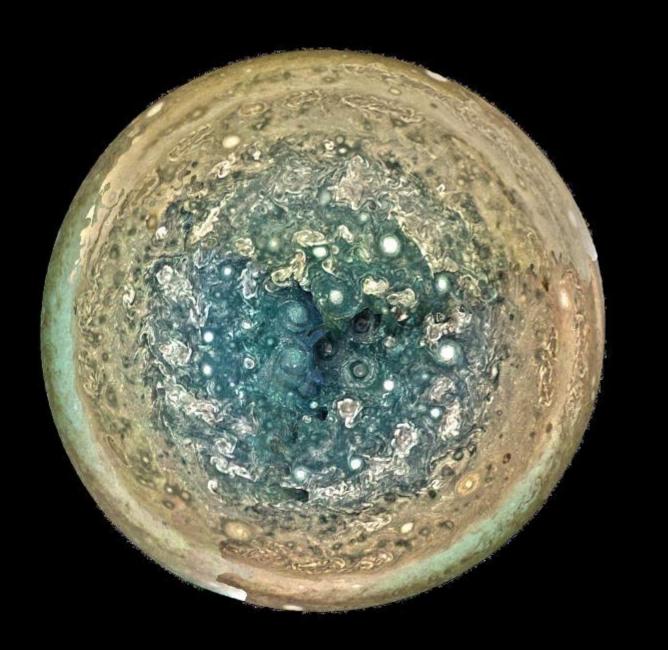


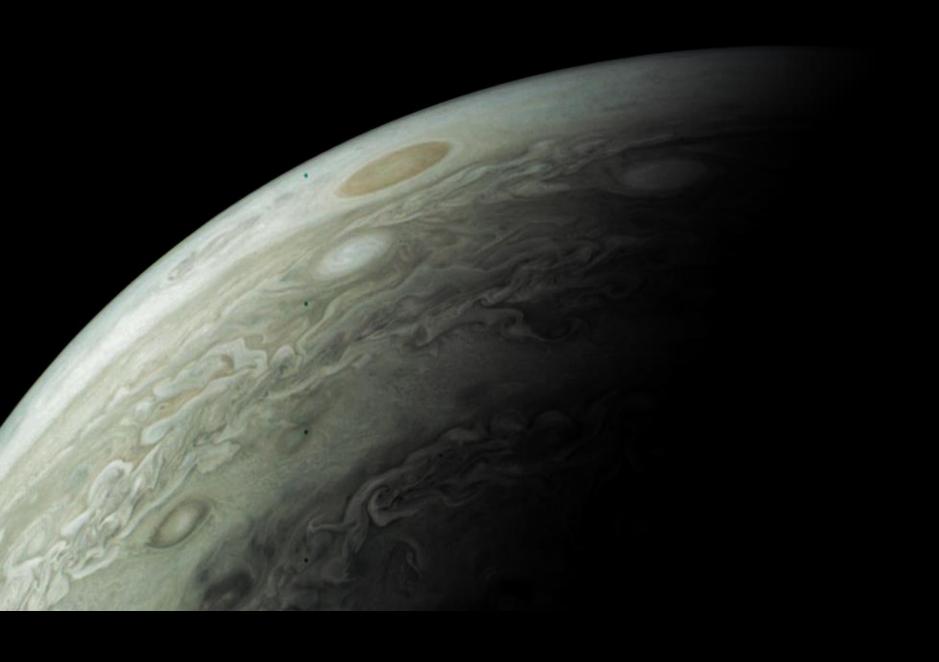


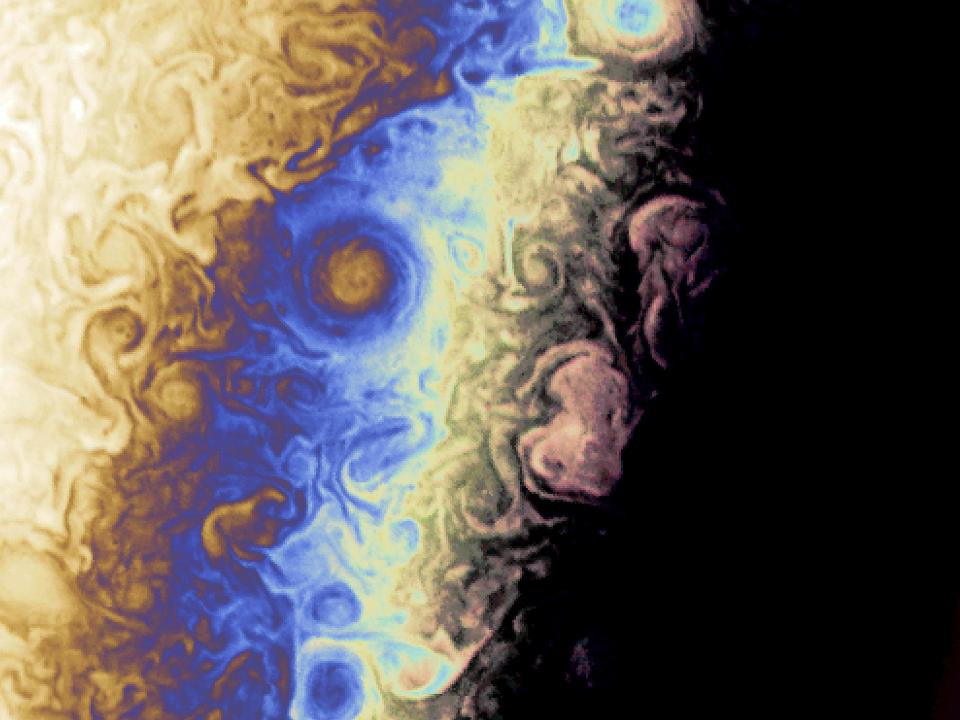








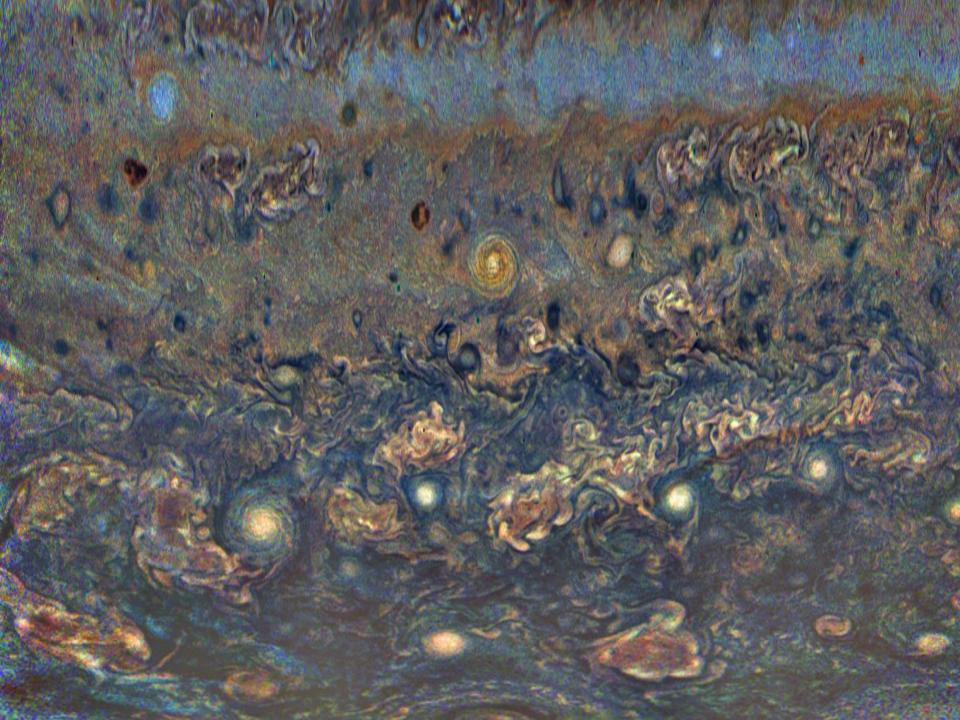


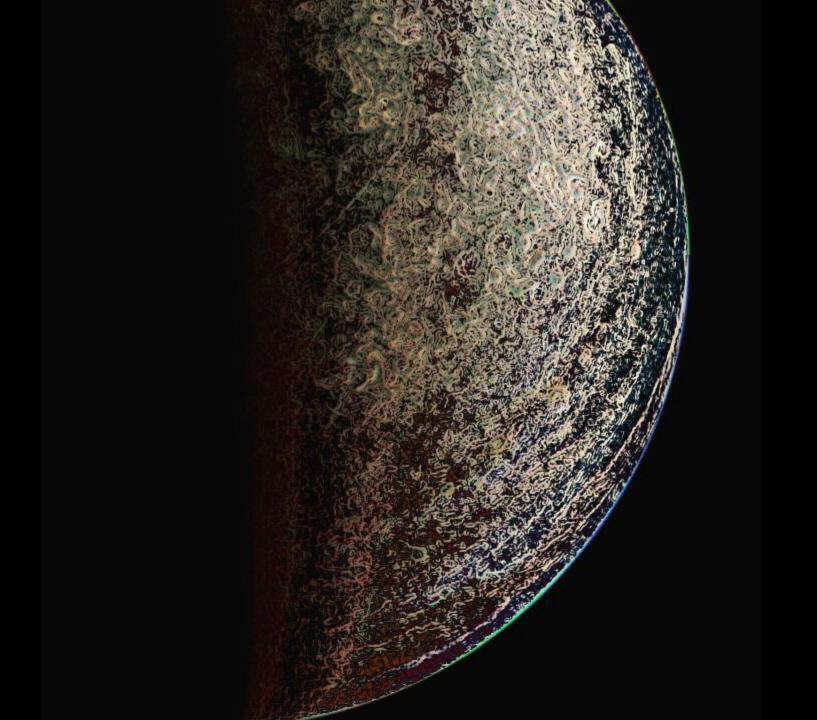


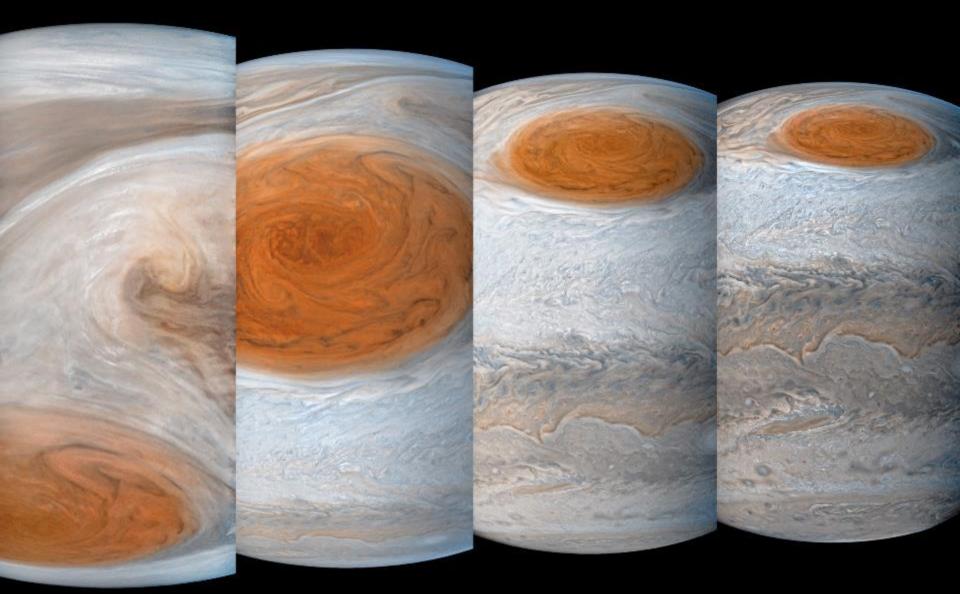










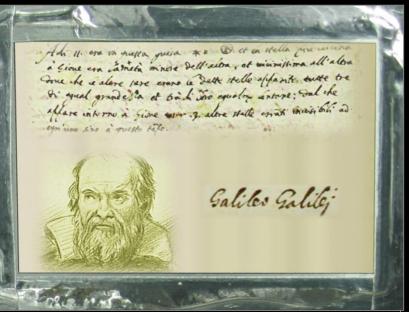






Juno's special passengers





Galileo, Juno and Jupiter



For more information...

Juno mission website: missionjuno.swri.edu





On the NASA website: www.nasa.gov/juno

